



Site 181 Good Harbor Beach

Overview: Good Harbor Beach is located in northeastern Gloucester, off Route 127A (Thatcher Road). The potential restoration site lies behind a municipally-owned and managed recreational beach. Infrastructure on the property includes a bath house/concession building and a long, relatively narrow paved parking area. The parking area was reportedly constructed over the former Bay State Street and Railway Company trolley line. The area identified as potential restoration encompasses an open unpaved area approximately 3.8 ac in size. Based on a review of historic USGS mapping dated from 1945 (Rockport, MA Quadrangle USGS 7.5 Minute Series), the unpaved land adjacent to the paved area appears to have been part of the large salt marsh to the north and west of the barrier beach system. Although the area is unpaved, much of the available area is used for parking during peak periods. This area generally lies 1 to 3 ft above the adjacent marsh. The central portion of the potential restoration site is the lowest and suffers from poor drainage. There are two remnant ditches which extend from the edge of the salt marsh into the lowest-lying portion of the area. The poor drainage limits the total area available for parking during portions of the beach season. The fill material on the site appears to consist of large boulders, gravel, sand, and miscellaneous debris. Debris collected from beach cleaning operations is currently stockpiled at the southern end of the parking lot. In addition to the beach, the entire salt marsh inside of the Route 127A corridor is owned by the City.

Structure conditions: There are no structures associated with this potential restoration site.

Ecological Integrity: As a former salt marsh area filled with rock, soil, and miscellaneous construction debris, the area being considered for restoration has a low level of ecological integrity. The ground surface within the restoration area is primarily mowed grassland. The central, low-lying portion of the area consists of exposed gravel and recycled asphalt. The leading edge of the fill includes larger stones along with some woody vegetation including *Iva*, staghorn sumac, locust, and rugosa rose. The adjacent marsh appears to be well functioning with limited impairments, despite the extent of past filling and density of development within the surrounding uplands. There are only limited fringing stands of *Phragmites* and loosestrife along the edge of the existing fill. These areas will likely rapidly expand as a result of the high volume of untreated runoff from the adjacent parking lot. A hydrologically isolated freshwater scrub/shrub and emergent marsh wetland lies within a depression located just east of the entrance off Route 127A. Debris collected from beach cleaning operations is currently stockpiled within the narrow dune system at the southern end of the parking lot. In addition to impacting coastal dune habitat, this management practice provides another opportunity for the introduction of invasive species into the barrier beach system.

There is a pronounced reduction in the number and frequency of parallel grid ditches within the salt marsh adjacent to the restoration area in comparison to the marsh on the opposite side of the main creek. There are also several connected shallow pools with radial ditching which are the result of past OMWM practices in the early 1980's. Shallow peat over sand within the salt marsh causes the pannes to drain too quickly (W. Montgomery, Superintendent, NE MA MWMD). The area is not contained within an ACEC, BioMap designations, or listed species habitat. The main creek is mapped as suitable habitat for soft shell clam and the beach front is mapped as suitable habitat for surf clam. The entire barrier beach and salt marsh complex south of the Route 127A corridor is municipally-owned. Land uses along the Route 127A corridor include high density residential and commercial.

No tide data was collected for the site. Currently there is only a single ditch approximately 3 ft wide and 1.2 ft in deep draining from the restoration area. The drainage channel splits into two



remnant ditches which extend into the low-lying portion of the fill site. The overall severity of the existing impairments within the fill site is considered severe. Removal of the fill material to near or slightly below the adjacent marsh elevation will restore salt marsh vegetation and lost flood storage volume. The restoration effort would include the removal of a portion of the existing fill, creation of a small creek system to encourage good tidal exchange, plantings, and adjacent infrastructure improvements to elevate and resurface the parking facilities. A partial restoration of approximately 2 ac is possible without substantially impacting existing parking spaces. Reconstruction of the parking area could also improve stormwater quality and reduce flooding and saturation problems within the low-lying parking areas. There are no important habitat values or adjacent properties which would be adversely impacted by the restoration activity. The restoration would also address the current populations of invasive species found along the leading edge of the fill. The City is currently initiating a Beach Management Plan which should include better operational practices for the handling of debris removed from the beach.

Construction Logistics/Feasibility: The overall constructability for this potential restoration site is considered high. There are no utilities or traffic impacts that would adversely influence construction costs. There is an existing 12 in water main running through the parking lot which would not be affected. The largest factor influencing construction cost is the nature of the fill material and related disposal options. Full restoration of the site will require excavation of approximately 13,000 cubic yards of material. This material is a combination of large boulders, gravel, sand, and miscellaneous debris (e.g., crushed bricks). The excavated material could potentially be relocated on site or might have to be hauled to a suitable disposal location (e.g., landfill or construction project). The total construction cost for full restoration including off-site disposal of fill material is estimated to be \$360,000. Almost 70% of this cost is associated with the excavation, hauling and disposal of the fill material. Significant cost savings could be realized if the amount of excavated material hauled off site is reduced. These options include elevating (and resurfacing as necessary) portions of the existing parking lot while using the remaining portion of the site for fill disposal and an enhanced parking layout. Other opportunities to reduce the construction cost include:

- Dovetailing this project with another nearby municipal project.
- If a large fraction of the fill is large boulders and stone, it may be cost effective to process the excavated material into crushed gravel for use on a road project.
- The boulders or stones could also be used as scour and/or erosion protection elsewhere in the City.

Based on conversations with municipal officials, parking fees collected at the facility are an important revenue source for the City. Consequently, a restoration proposal which results in the loss of parking spaces will likely have difficulty receiving local support and approvals. Therefore, the full restoration concept has a low overall feasibility. The current parking layout is not the most efficient use of area. Alternative parking layouts that are more efficient were investigated. More efficient parking layouts could include long aisles with one-way circulation and angle parking, or long aisles with two-way circulation and standard parking (perpendicular to the aisle). Berger estimates the site provides approximately 430 parking spaces including parking within unpaved areas. A preliminary investigation indicates that modifications to the parking layout could maintain the 430 parking spaces and restore approximately half (or 2.0 ac) of the site. The estimated construction cost associated with this partial restoration alternative is in the range of \$240,000. Although hauling and disposal costs are substantially reduced, this estimate includes approximately \$90,000 in parking lot improvements. This cost assumes that portions of the parking area will be elevated with the excavated material, regraded to improve drainage and



Great Marsh Coastal Wetlands Restoration Plan
Rapid Technical Assessment Site 181



stormwater management, and resurfaced. The resurfacing would be a crushed gravel or rock mixture (e.g., Nit Pak) as repaving would not be allowed within the barrier beach system.

Socioeconomic: Recreational values of the site are enhanced by the excellent public access and wildlife viewing opportunities provided by the adjacent recreational lands, as well as available on-site parking. The municipal ownership status, good access, and level of visitation greatly enhance educational and outreach opportunities. The Veterans Memorial and East Gloucester Elementary Schools are within one mi from the site. The site's Uniqueness/Heritage value is enhanced by its relatively high viewscape and wildlife values within a developed setting. The area is not contained within an ACEC, or other important habitat designation, nor does it include any known cultural resource elements or urban setting values.

Restoration Potential: The full restoration of approximately 3.8 ac within the site is considered to have a low restoration potential based on the additional costs and the anticipated lack of local support due to loss of parking fee revenues. However, a partial restoration of approximately 2 ac of filled marsh is considered to have high potential, tempered only by the relatively high costs per area (depending on the construction and disposal options considered). The reconfiguration of existing parking is anticipated to greatly reduce or avoid the loss of existing parking spaces and improve the drainage and surface conditions in the parking area as a whole. Other factors increasing the restoration potential include the high recreational value, outreach potential, municipal land ownership, and the potential to incorporate elements of the ongoing beach management plan. Current populations of invasive species are somewhat limited but are expected to worsen without corrective actions. There are also opportunities to address the lack of stormwater treatment from the parking area. Overall, there are relatively few construction implementation drawbacks (e.g., no low lying abutters or utilities). Key future steps toward implementation of the project would involve coordination with the City to build local government support and embarking on a more detailed feasibility study to better characterize the fill material, surface conditions, water main location, and parking options. These activities should be dovetailed with the current Beach Management Plan under preparation by the City.





Photo 1 - Parking Lot and Restoration Area Viewing Northeast



Photo 2 - Ditch Leading into Low-Lying Portion of Site along Fill Edge





Photo 3 - Adjacent Marsh Viewing North



Photo 4 - Remnant Ditch Extending into Low-lying Portion of Site





Photo 5 - Stockpile of Debris from Beach Cleaning





Great Marsh Coastal Wetlands Restoration Planning

Rapid Field Assessment

Site # 181
Good Harbor Beach



Site Information

Site ID:

Site Name:

Municipality:

Location:

Adjacent Waterbody:

Affected Area (Acres)

Mudflat/Open Water: Total Area:

Salt Marsh:

Other Wetland: Other Description:

Other: Fill

Impairment(s)

Tidal Restriction ☐ Fill ☒

Obstructed Ditch(es) ☐ Invasive Species ☒

Impoundment ☐ Pollution / Siltation ☒

Severity of Impairments

Project Type

Roadway Culvert(s) ☐ Obstructed Ditches ☐

Bridge ☐ Fill ☒

Berm ☐ Other

Evidence of Restriction

Gauge Data ☐ Impounded Flow ☐

Downstream Scour Pool ☐ Obstructed Flow ☐

Upstream Scour Pool ☐ Invasive Species ☐

Bank Erosion ☐ Ponded Conditions ☐

Slumping ☐ Subsidence ☐

Structure / Channel:

Overall Condition:

Life Expectancy (Years):

Road Condition:

Structure Type:

Structure Age (Years):

Structure 1 Width (Feet):

Structure 1 Length (Feet):

Structure 2 Width (Feet):

Structure 2 Length (Feet):

Skew (Degrees):

Cover (Feet):

Scour Protection: ☐

Adequately Aligned: ☐

Headwall Type:

Headwall Condition:

Ecological Integrity / Habitat Value

Surrounding Land Use %

Commercial / Industrial

Residential

Agricultural

Undeveloped

Severity of Impairment(s)

Invasive Plant Cover:

Extent of Wooded Buffer:

Habitat Connectivity:

NHESP Estimated Habitats of Rare Wildlife: ☐

NHESP Priority Habitats of Rare Species: ☐

NHESP BioMap Core Habitat: ☐

NHESP BioMap Supporting Natural Landscape: ☐

ACEC: ☐

Anadromous Fish: ☐

Shellfishing Suitability: ☒

Barriers to Fish Passage



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Construction Logistics / Feasibility

Traffic Volume	Low
Detour Potential	<input checked="" type="checkbox"/>
Site Access	Good
Staging Areas	<input checked="" type="checkbox"/>
Fill Material Concern	Moderate
Low Lying Property Concerns	None
Overhead Utility Constraint	None
Underground Utilities	
Water <input type="checkbox"/>	Telephone <input type="checkbox"/>
Gas <input type="checkbox"/>	Sewer <input type="checkbox"/>
Electric <input type="checkbox"/>	Drainage <input type="checkbox"/>
Permitting Complexity	Medium
Local Support	Yes
Feasibility Cost	25,000
Design Cost	60,000
Permitting Cost	25,000
Construction Cost	240,000
Total Cost	350,000
Relative Cost/Acre	175,000

Socioeconomic

Recreation	Education
Public Access: <input checked="" type="checkbox"/>	Schools Nearby: <input checked="" type="checkbox"/>
Watercraft / Portage: <input type="checkbox"/>	Ongoing Research: <input type="checkbox"/>
Wildlife Viewing: <input checked="" type="checkbox"/>	Education / Outreach Potential: High
	Safety Concerns (Access): Low
Uniqueness / Heritage Value	
Rare Species Habitat: <input type="checkbox"/>	
ACEC: <input type="checkbox"/>	
Cultural Resource Features <input type="checkbox"/>	
Urban Viewscape Value: High	
Urban Habitat Value: High	

Tide Surveys

	Start:		Finish:	
Dates of 1st Survey:		-		
Date of Highest Tide:				
Max Measured Tidal Dampening:				
Percent of Tidal Prism:				
Measured Delay:				
	Start:		Finish:	
Dates of 2nd Survey:		-		
Date of Highest Tide:				
Max Measured Tidal Dampening:				
Percent of Tidal Prism:				
Measured Delay:				

Summary

Uniqueness / Heritage Value:	Medium	Ecological Integrity:	Low
Recreational Value:	High	Logistics / Feasibility:	High
Educational Value:	High		
Restoration Potential:			High